

July 21, 2011
Public Draft

Economic Sustainability Plan for the Sacramento-San Joaquin Delta

Delta Protection Commission

Public comments are welcome on the First Public Draft Economic Sustainability Plan for the Sacramento-San Joaquin Delta. Please submit your comments to: espcomments@pacific.edu

THIS IS A DRAFT DOCUMENT

This document is under development. Additional content will be added and further revisions made as research and consultation continues.

Some figures and tables are under development. Citations and references are incomplete and being developed on a constant basis.

Significant changes from the first administrative draft include:

- a complete draft of all chapters are now included
- a significant amount of technical discussion has been moved to appendices for clarity and brevity
- a draft of recommended actions and strategies are now included in the final chapter for initial consideration by the Delta Protection Commission.

Table of Contents

List of Figures.....	6
List of Tables.....	7
Chapter 1: Introduction.....	9
Part One: Background and Context for the Economic Sustainability Plan.....	12
Chapter 2: Overview of the People and Economy of the Delta.....	13
1 Overview and Key Findings	13
2 The People of the Delta	14
2.1 Demographic Conditions and Trends.....	14
2.2 Housing Trends	20
2.3 Labor Force Participation and Commute Patterns	20
3 Baseline Economic Conditions and Trends in the Delta	21
3.1 Employment Growth by Sector.....	21
3.2 Location Quotient Analysis.....	25
3.3 Export Orientation	25
Chapter 3: Review of Key Policies and Planning Processes	27
4 County General Plans and the Delta	30
4.1 Contra Costa County	30
4.2 Sacramento County.....	31
4.3 San Joaquin County	33
4.4 Solano County	34
4.5 Yolo County	35
5 Delta Protection Commission Land Use and Resource Management Plan.....	36
6 State of California Planning for the Delta.....	37
6.1 Delta Vision	37
6.2 Sacramento-San Joaquin Delta Conservancy	38
6.3 Delta Reform Act of 2009	39
6.4 Delta Stewardship Council Delta Plan.....	39
6.5 The 2012 Delta Plan (Delta Plan).....	40
7 Bay Delta Conservation Plan	40
8 Conclusions	41
Chapter 4: Flood, Earthquake and Sea-Level Rise Risk Management.....	42
1 Overview and Key Findings	42
2 Background.....	43
3 Status of Delta Levees.....	50

3.1 Categories of Levees	50
3.2 Levee Standards	56
3.3 Previous Studies of Delta Levees	60
4 Risk-Reduction Strategies	64
4.1 Improve the robustness of the existing levees	64
4.2 Improve flood-fighting and emergency repairs after earthquakes	67
4.3 Improve repair of breaches and draining of flooded islands.....	67
4.4 Summary	68
5 Levee Improvement Strategies and Funding	69
Part Two: Analysis of Key Economic Sectors in the Delta	74
Chapter 5: Framework for Analysis.....	75
1 Baseline Scenario	75
2 Isolated Conveyance Scenario	76
3 Habitat Conservation Scenarios	78
4 Levee Scenarios	79
5 Regulatory Scenarios.....	80
6 Delta Vision Strategies.....	82
Chapter 6: Agriculture	83
1 Overview and Key findings	83
2 Current Status and Trends.....	84
2.1 Mapping Delta Agriculture	84
2.2 Crop Categories	85
2.3 Delta Agricultural Acreage.....	86
2.4 Delta Agricultural Revenues.....	90
3 Outcomes and Strategies Under Baseline Conditions	92
3.1 Long-run Forecasted Land Allocation	92
4 Impact of Policy Scenarios.....	95
4.1 Salinity Impacts of Isolated Conveyance Facilities.....	95
4.2 Loss of Agricultural Value from Habitat Conservation Scenarios	98
4.3 Loss of Agricultural Value from Flood Control Scenarios	104
5 Economic Impact of Delta Agriculture	105
5.1 Animal Production in the Delta	105
5.2 Local Source Dependent Food and Beverage Manufacturing.....	105
5.3 Economic Impact Estimates	106
6 Other Agriculture Issues	109
Chapter 7: Recreation and Tourism	110

1	Overview and Key Findings	110
2	Introduction	112
3	Current Status and Trends.....	113
3.1	Understanding 'Delta as Place' Today	113
3.2	Existing Physical Conditions	114
3.3	Existing Operations Condition	122
3.4	Visitation and Demand	123
3.5	Economic Impact/Benefits.....	132
3.6	Trends	136
3.7	Key Findings.....	140
4	Outcomes and Strategies under Baseline Conditions	141
4.1	Opportunities and Constraints	141
4.2	Principals and Goals	145
4.3	Recreation Enhancement Strategy	146
4.4	Potential Operational Solutions	150
4.5	Visitation Potential.....	152
4.6	Economic Potential.....	153
4.7	Key Findings.....	154
5	Impact of Policy Scenarios.....	155
5.1	Policy Scenarios Impacts on Recreation Potential	155
5.2	Impact Analysis and Mitigation Potential.....	160
5.3	Key Findings.....	161
	Chapter 8: Infrastructure	163
1	Overview and Key Findings	163
2	Transportation.....	165
3	Energy.....	168
4	Water Issues for Delta Communities	170
	Chapter 9: Other Economic Sectors	173
1	Overview and Key Findings	173
2	Assessment of Other Key Sectors	173
3	Manufacturing	174
4	Real Estate and Rental and Leasing Sector	174
5	Construction.....	175
6	Assessment of Other Sectors	175
7	Retail.....	175
8	Health Care.....	176

9	Transportation and Warehousing.....	176
Chapter 10: Local Government Services in the Delta.....		177
1	Overview and Key Findings	177
2	Approach.....	177
3	Current Status and Trends.....	178
3.1	Law Enforcement and Emergency Response Services	180
3.2	Fire Protection/ First Response.....	182
3.3	Educational Services.....	183
4	Outcomes and Strategies under Baseline Conditions	185
5	Impact of Policy Scenarios.....	185
Chapter 11: Legacy Communities.....		186
1	Overview and Key Findings	186
1.1	Opportunities and Strengths.....	186
1.2	Constraints and Challenges	187
1.3	The Vision for Clarksburg, Walnut Grove, and Locke	188
1.4	Implementation.....	188
2	Current Status and Trends.....	188
2.1	Clarksburg	189
2.2	Walnut Grove/Locke	203
2.3	Other Legacy Communities	216
3	Impact of Policy Scenarios.....	223
3.1	Water Conveyance	223
3.2	Conservation Measures	223
3.3	Levee Scenarios.....	223
3.4	Regulatory Scenarios	224
4	Conclusion	225
Part Three: Integration and Recommendations		226
Chapter 12: Key Findings and Recommendations.....		227
Overview.....		227
Part I: Existing Conditions		227
Overview of the People and Economy of the Delta		227
Review of Key Policies and Planning Processes.....		228
Flood, Earthquake, and Sea-Level Rise Risk Management		230
Part II: Key Economic Sectors, Legacy Communities, and Public Services.....		231
Framework for Analysis		231
Agriculture		232

Recreation and Tourism	233
Infrastructure	235
Other Key Economic Sectors	235
Local Government Services in the Delta	236
Legacy Communities	236
Chapter 13: Recommended Strategies and Policies for Economic Sustainability	239
Three Key Issues.....	239
Recommended Actions for Economic Sustainability	243

List of Figures

Figure 1 Age Distribution in the Delta	16
Figure 2 Race in the Primary Zone	17
Figure 3 Race in the Secondary Zone	18
Figure 4 Income Distribution in the Delta	19
Figure 5 Employment Growth Trends, 2002-2009	23
Figure 6 Distribution of Employment by Industry in the Delta	24
Figure 7 Map of the Primary and Secondary Zones of the Sacramento San Joaquin Delta.	29
Figure 8 Delta Levees	44
Figure 9 The Historic Delta	47
Figure 10 Construction of Delta Levees	48
Figure 11 Construction of Dredger Cuts	48
Figure 12 Current Elevations of Delta Levees	49
Figure 13 Urban and Non-Urban Levee Evaluation Programs	52
Figure 14 All Islands Containing Critical Facilities	54
Figure 15 The Suddeth et al. Inland Sea	55
Figure 16 Example Delta Levee Cross Section	59
Figure 17 BDCP Map of Tunnel Conveyance	77
Figure 18 FMMP Delta Farmland Coverage	88
Figure 19 Agricultural Land Cover, 2010	89
Figure 20 Average Revenues per Acre	91
Figure 21 Probability of Long-run Transition to Truck Crops	94
Figure 22 Salinity Observation Stations	96
Figure 23 BDCP Conservation Zones	100
Figure 24 BDCP Restoration Opportunity Areas	102
Figure 25 Delta Recreation Zones	116
Figure 26 Delta Recreation Facilities	117
Figure 27 Delta Tourism Facilities	118
Figure 28 Delta Market Area and Competing Regions	125
Figure 29 Vessel Registration v. Population in Market Area, 1980-2010	139
Figure 30 Employment in Legal Delta for Water-Based Recreation Sectors, 1980-2009	139
Figure 31 Recreation Enhancement Strategy Plan	147
Figure 32 Existing Recreation Facilities in the Vicinity of Six-Island Flood Scenario	158
Figure 33 Select Delta Infrastructure	164
Figure 34 Annual Cargo Tonnage Ports of West Sacramento and Stockton 2005-2009	167
Figure 35 Annual In-State Power Generations by Resource Type, 1997-2010	169
Figure 36 Sacramento County Sheriff's Department Staffing Trend	181
Figure 37 River Delta United Enrollment Trend	184
Figure 38 Academic Performance Index (API) Scores, 2009-10	184
Figure 39 Student-Teacher Ratios, River Delta School District and Sacramento County	185
Figure 40 Legacy Communities and Census Block Group Boundaries	189
Figure 41 Clarksburg Census Block Group Boundary	191
Figure 42 Clarksburg Population Age Distribution	193
Figure 43 Population Racial Distribution in Clarksburg	194
Figure 44 Clarksburg Educational Attainment, 2005/2009	194
Figure 45 Clarksburg Household Income Distribution, 2005/2009	195
Figure 46 Distribution of Clarksburg Employment (2007-9)	197
Figure 47 Employment Growth Trends, 2002-2009	198
Figure 48 Walnut Grove/Locke/Ryde Census Block Group Boundaries	205
Figure 49 Walnut Grove/Locke/Ryde Population Age Distribution, 2005/2009	206

Figure 50 Population Racial Distribution in Walnut Grove/Locke/Ryde	207
Figure 51 Walnut Grove/Locke/Ryde Educ. Attainment, 2005/2009.....	208
Figure 52 Walnut Grove/Locke/Ryde Household Income Distribution.....	209
Figure 53 Walnut Grove/Locke/Ryde Employment 2002-2009.....	211
Figure 54 Walnut Grove/Locke/Ryde Employment Growth Trends, 2002-2009	212
Figure 55 Isleton Census Block Group Boundary	217
Figure 56 Ryde Census Block Group Boundary	219
Figure 57 Courtland and Hood Census Block Group Boundaries.....	221

List of Tables

Table 1 Delta Levees (Part 1 of 2)	45
Table 2 Delta Levees (Part 2 of 2)	46
Table 3 Delta Levee Subventions Maintenance Program Cost Share 1973-2010.....	70
Table 4 Delta Levee Program Special Projects State Expenditure 1989-2010.....	71
Table 5 Crop Category Examples	86
Table 6 Total Farmland Acreage, 2008.....	86
Table 7 Delta Agricultural Acreage, 2010	87
Table 8 Top 20 Delta Crops by Acreage, 2009.....	87
Table 9 Delta Agricultural Revenues, 2009.....	90
Table 10 Top 20 Delta Crops by Value, 2009	92
Table 11 Long-run Land Allocation Forecast	92
Table 12 Long-run Agricultural Revenue Forecast	93
Table 13 Forecasted Crop Distribution Changes from Increasing Delta Salinity	97
Table 14 Agricultural Composition of BDCP Conservation Zones	99
Table 15 Agricultural Revenue Distribution.....	101
Table 16 Agricultural Composition of BDCP Restoration Opportunity Area.....	103
Table 17 Five Island Agricultural Composition.....	104
Table 18 Animal Output in the Delta	105
Table 19 Agriculture Related Output Used for the 5 County IMPLAN model.....	107
Table 20 Economic Impact of Delta Agriculture on 5 Delta Counties	107
Table 21 Economic Impact of Delta Agriculture on California.....	108
Table 22 Economic Impact of Delta Agriculture on 5 Delta Counties	108
Table 23 Economic Impact of Delta Agriculture on California.....	108
Table 24 Summary of Facilities and Resources by Recreation Zone	115
Table 25 Data for Recreation-Related Enterprises within the Legal Delta in 2008	120
Table 26 Accommodations within the Delta	120
Table 27 Population Projections for the Primary and Secondary Market Areas	124
Table 28 Public Opinions on Outdoor Recreation in California.....	126
Table 29 National Survey of Fishing, Hunting, and Wildlife-Associated Activities	127
Table 30 Summary of Actual Visitation to the Delta.....	129
Table 31 Summary of Visitation Estimates to the Delta	132
Table 32 Estimated Resource-Related and Right-of-Way/Tourism Visitation.....	133
Table 33 Estimated Per-Day Per Visitor Expenditure by Activity	134
Table 34 Estimated Direct Delta Recreation Trip Spending Impacts by Activity	135
Table 35 Estimated Direct Delta Recreation Trip Spending by IMPLAN sectors	136
Table 36 Economic Impact of Delta Recreation and Tourism on Five Delta Counties	136
Table 37 Economic Impact of Delta Recreation and Tourism on California.....	136
Table 38 Delta Recreation Facilitator Opportunities and Constraints Matrix	152

Table 39 Summary of Predicted Visitor Days under Baseline Scenario	153
Table 40 Predicted Trends in Major Recreation Categories under Policy Scenarios	159
Table 41 Daily Total Vehicle Trips (DTVT) on Key Transportation Routes 1992-2009.....	165
Table 42 Daily Total Truck Trips (DTTT) on Key Transportation Routes 1992-2009.....	166
Table 43 Aviation Facilities in the Legal Delta	168
Table 44 Status of Government Services Interviews	178
Table 45 Government Service Providers in Delta Primary Zone	179
Table 46 Public Safety Service Providers – Delta Secondary Zone	180
Table 47 Clarksburg Employed Labor Force by Industry, 2009	196
Table 48 Walnut Grove/Locke/Ryde Employed Labor Force by Industry, 2005/2009	210